**Before the**

**FEDERAL COMMUNICATIONS COMMISSION**
**WASHINGTON, D.C. 20554**

| | | |
|---|---|---|
| In the Matter of: | ) | |
| | ) | |
| Expanding Flexible Use in Mid Band Spectrum Between 3.7 and 24 GHz | ) | GN Docket No. 17 – 183 |
| | ) | |

# REPLY COMMENTS OF THE NEW YORK CITY POLICE DEPARTMENT

## I. INTRODUCTION

The New York City Police Department ("NYPD"), on behalf of Mayor's Office of the Chief Technology Officer ("NYC CTO") and New York City's ("the City") public safety agencies, including the NYPD, New York City Fire Department (FDNY), New York City Department of Information Technology and Telecommunications ("DOITT") and New York City Office of Emergency Management ("OEM") respectfully submits these reply comments in response to the Notice of Inquiry (NOI) and comments filed in the above captioned proceeding. The New York City Police Department appreciates the Commission affording us this opportunity to express our views regarding this critical and timely issue.

The New York City Police Department is the Nation's largest police agency with plenary law enforcement responsibility within the five Boroughs of the City of New York. The New York City Police Department receives approximately ten million E-911 calls annually, and patrols an area of approximately 306 square miles, including some of the most densely populated geography in the nation.

The NYPD shares many of the concerns expressed by National Public Safety Telecommunications Council (NPSTC) and concurs with their Comments filed with the Commission on October 2, 2017[1].

## II. REPLY COMMENTS

While the NYPD recognizes that the NOI seeks comment on many mid-band spectrum segments, in these reply comments, we focus on the 5.925 – 6.425 GHz and 6.425 – 7.125 bands, subsequently referred to collectively as the 6GHz band. This band is utilized by many public safety entities to provide microwave fixed service (FS) point to point connectivity in support of public safety land mobile systems not only in New York City but by public safety agencies nationwide. As the NOI recognizes, the 6GHz band is heavily utilized by many public safety and critical infrastructure organizations, as there are over 27,000 licenses issued for FS microwave point to point operations in this band, many of which support public safety services including backhaul for police and fire land mobile radio systems.[2]

The NYPD does not believe that existing Part 15 protections as applied to Wi-Fi devices should be considered applicable in this case, as existing Wi-Fi operations do not share the same band as public safety and critical infrastructure FS microwave links. The NYPD believes that unlicensed use is not compatible with frequency bands governed by Part 101 of the Commission's rules and concurs with the comments of Tucson Electric Power cited below.[3]

---

[1] See Comments submitted by the National Public Safety Telecommunications Council (NPSTC)
[2] See NOI at paragraph 25.
[3] See comments of Tucson Electric Power Company, page5, section 3.2, paragraph 1.

"TEP (Tucson Electric Power) believes that there is no way forward to share traditional Part 101 bands on an interference free basis with unlicensed operators. This belief is due to the inherently chaotic, contentious use typically employed by Part 15 (unlicensed) users in their operations. Part 15 users understand and accept that they have no expectation of protection from harmful interference even if such interference causes undesired operation of their own communications systems. The Part 15 paradigm for operating communications systems simply is not compatible with communications systems operating under Part 101 of the Commission's rules."

The NYPD is particularly concerned that, in cases where fixed service ("FS") microwave receivers are located in or on high buildings within dense urban areas, a transmitting unlicensed device may interfere with the weak signal present at the FS microwave receiver supporting public safety or critical infrastructure land mobile radio operations. Furthermore, detect and avoid mechanisms commonly employed by unlicensed devices will not detect the presence of a FS microwave receiver as they are only designed to detect transmitters in close proximity. The NYPD concurs with the comments of Tucson Electric Power cited below[4]:

"TEP (Tucson Electric Power) also does not believe that there exists any mechanism to effectively mitigate interference from unlicensed users in traditional Part 101 bands. For example, detect and avoid interference mitigation strategies currently used by Part 15 users will not work for Part 101 incumbents. This is because detect and avoid mechanisms assume that by solely detecting the transmitter of the protected system, mitigation efforts

[4] See Comments of Tucson Electric Power, page5, section 3.2, paragraph 2.

can be employed to protect the receiver. In fixed microwave systems the transmitter of the protected system may be very far from away with a signal that most detect and avoid methods are not able to sense. However, the far-end receiver of the protected system might very well be in close proximity to the Part 15 transmitter and fall victim to unintentional harmful interference from Part 15 operations. This misfortune is analogous to a "hidden node" effect that will be impossible for the protected Part 101 system to predict, identify or mitigate. For the critical control systems, this type of interference could be catastrophic."

The NYPD is also concerned that permitting additional licensed or unlicensed access to the 6GHz band may inhibit the expansion of existing public safety and critical infrastructure land mobile radio systems by restricting access to new FS microwave links or by inhibiting the ability of incumbent licensees to increase the bandwidth of existing licensed FS microwave links due to congestion caused by expanded and uncoordinated access to the 6GHz band.

The NYPD is concerned that the noise floor will rise in the 6GHz band if a large number of unlicensed devices are deployed, and that interference resolution would be time consuming. The NYPD concurs with the comments filed by Duke Energy Corporation[5] in this regard and cited below:

"Duke Energy is concerned that the noise floor in these bands will rise as a result of the aggregated operation of many unlicensed devices. This has been the case in other unlicensed bands and it is reasonable to assume that it would occur in the 6GHz bands if

[5] See Comments of Duke Energy Corporation, section III, pages 3&4.

they were expanded to permit widespread unlicensed operation. Resolution of interference problems is time consuming, difficult and expensive. Troubleshooting involves searching for unwanted frequencies with antennas and spectrum analyzer equipment. This is repeated in multiple locations, using triangulation or other logical geographic methods in an effort to locate the source of the unwanted signals. If the source is not fixed, the problem is compounded. This process can take days or weeks. When the source is finally identified, then efforts to resolve the problem can begin. Cost to the licensee can easily be in the tens of thousands of dollars to identify and resolve a single instance of interference."

## III. SUMMARY

New York City is a leader among cities in the deployment of innovative wireless technologies and has long demonstrated its support for the availability of reliable and competitive wireless communications services. The City also recognizes the intense demand for spectrum and the importance of wireless broadband in meeting a growing public demand services. While the City recognizes that some additional uses may be feasible in other mid-band spectrum segments, the City urges the Commission to proceed with extreme caution prior to using its authority to permit additional flexible access to the 6GHz band, even in limited use cases, as providing such access to this band, without ensuring proper protection for incumbent licensees, many of which support public safety and critical infrastructure operations, may result in unintended negative consequences including the disruption of public safety and critical infrastructure services. The NYPD is concerned that existing carrier sense collision avoidance technology commonly employed by Wi-Fi operators will not be sufficient to protect FS microwave receivers installed in close proximity to Wi-Fi radiators.

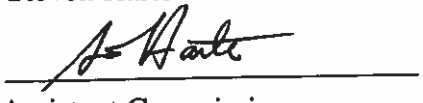
## IV. RECOMMENDATION

The NYPD urges the Commission either to exclude the 6GHz band from further consideration for flexible access by licensed or unlicensed operators, or take all necessary steps, including swift enforcement action when appropriate, to ensure that interference to incumbent licensees does not occur, by requiring the implementation of location aware devices incorporating geo-fenced exclusion zones. The NYPD contends that carrier sense collision avoidance technology as currently implemented in existing Wi-Fi bands are incapable of detecting and protecting Part 101 (fixed microwave) licensed microwave receivers, as these receivers are not co-located with their respective transmitters.

If the Commission ultimately decides to permit unlicensed broadband Wi-Fi type operation in the 6GHz band, it should mandate that technology be employed to protect Part 101 incumbents, and that such technology be thoroughly tested prior to rule adoption for all use cases that present a potential interference threat to public safety or critical infrastructure incumbent licensees on the 6GHz band.

Respectfully Submitted,

Steven Harte



Assistant Commissioner

New York City Police Department

November 15, 2017